

Claims

1. A process for performing nucleophilic substitution reactions on aryl diazonium salts or derivatives thereof wherein the aryl diazonium salt is first generated in an aqueous solvent system followed by partitioning of the aryl diazonium salt with a hydrophobic ionic liquid thereby allowing subsequent reaction of the aryl diazonium salt with an appropriate nucleophilic species in the hydrophobic ionic liquid to the desired product without the need to first isolate the aryl diazonium salt.

2. A process for performing nucleophilic substitution reactions on aryl diazonium salts or derivatives thereof wherein

in step 1, an aromatic amine is diazotised in an aqueous solvent system to give an aryl diazonium salt,

in step 2, the aqueous solvent system containing the aryl diazonium salt is contacted with a hydrophobic ionic liquid whereby at least a portion of the aryl diazonium salt is transferred from the aqueous solvent system to the hydrophobic ionic liquid,

in step 3, reacting the aryl diazonium salt with an appropriate nucleophilic species in the hydrophobic ionic liquid to give the desired product without the need to first isolate the aryl diazonium salt from the hydrophobic ionic liquid.

3. A process for performing nucleophilic substitution reactions on aryl diazonium salts or derivatives thereof wherein

in step 1, an aromatic amine is diazotised in an aqueous solvent system to give an aryl diazonium salt,

in step 2, the aqueous solvent system containing the aryl diazonium salt is contacted with a hydrophobic ionic liquid whereby at least a portion of the aryl diazonium salt is transferred from the aqueous solvent system to the hydrophobic ionic liquid,

in step 3, separating the hydrophobic ionic liquid containing the aryl diazonium salt from the aqueous solvent system,

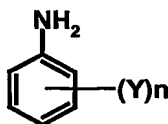
in step 4, reacting the aryl diazonium salt with an appropriate nucleophilic species in the hydrophobic ionic liquid to give the desired product without the need to first isolate the aryl diazonium salt from the hydrophobic ionic liquid.

4. A process according to any one of claims 1 to 3 wherein the aryl diazonium salt is formed by the reaction of nitrous acid with an aromatic amine compound.

5. A process according to claim 4 wherein the nitrous acid is formed by the reaction of an alkali metal nitrite with an acid.

6. A process according to claim 5 wherein the acid comprises an inorganic acid.

7. A process according to any one of claims 2 to 6 wherein the aromatic amine is an optionally substituted aniline compound of Formula (2).



Formula (2)

wherein :

Y is an optional substituent as hereinbefore described; and

n is 0, 1, 2 or 3.

8. A process according to any one of the preceding claims wherein the hydrophobic ionic liquid forms a biphasic solution when mixed with the aqueous solvent system.

9. A process according to any one of the preceding claims wherein the hydrophobic ionic liquid is selected from the group comprising [emim][NTf₂] 1-ethyl-3-methylimidazolium bis(trifluoromethylsulfonyl)imide, [bmim][PF₆] N-butylpyridinium hexafluorophosphate, [bbim][Br] 1-dibutyl-3-methylimidazolium bromide, and [C₄DBU]Br carbon tetra-1,8-diazabicyclo[5.4.0]undec-7-ene bromide.

10. A process according to any one of the preceding claims wherein the nucleophilic species which substitutes the aryl diazonium salt comprises fluoride, chloride, bromide, iodide, nitrile or thiocyanate.

11. A process according to any one of the preceding claims wherein the nucleophilic species is present in or forms part of the hydrophobic ionic liquid.

12. A process substantially as herein described with reference to any one of the examples.